

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

CURRENT LITERATURE IN AGRICULTURAL ENGINEERING

BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING
UNITED STATES DEPARTMENT OF AGRICULTURE

WASHINGTON, D.C.

Vol. 10, No. 9

April 1941

Agricultural Products.

How to increase food production.
v.23, no.2. January 1941.

Scottish journal of agriculture.
p.82-106.

Agriculture.

Our changed farm economy.
v.25, no.5. May 1941.

By L. H. Bean.
p.16-18.

Agricultural situation.

War and the farmer. Fertilizer review.
January-February-March, 1941. p.2-3, 16.
reveal his position at this stage of the conflict.

v.16, no.1.
Recent figures

Air Conditioning.

Air conditioning as applied to foods and industry.
engineering. v.40, no.5. November 1940.
330, 332.

Refrigerating
p.297-299,

Comparison of the weight, particle count and discoloration methods of testing
air filters. By Frank.B. Rowley and Richard C. Jordan.

Heating, piping & air conditioning. v.13, no.4. April 1941.
p.246-255.

Relative merits of three filter test methods based on weight, particle count, and discoloration are analyzed and test results are correlated with theory of filtering air. Particle count method of testing filters in its present state of perfection seems to require too long a time to make determination which can be considered statistically reliable. Discoloration method is probably best measure of reduction in discoloration, while weight method is best measure of reduction of larger visible dust particles.

How to figure air conditioning. Part I.
v.41, no.5. May 1941.
data 25, p.1-7.

Refrigerating engineering.
Refrigerating engineering application

Alcohol Fuel.

Alcohol from blackstrap: Production cost and fermentation efficiencies.
By William L. Owen. Facts about sugar. v.35, no.7.
July 1940. p.38-41.

Comparative effects of plant efficiency and raw material cost in determining profit or loss in industrial alcohol manufacture.

Alcohol Fuel. (Cont'd.)

Fuel alcohol production. By G. C. Dymond. International sugar
journal. v.43, no.506. February 1941. p.55-56.

Belts.

How to buy transmission belting. By Ernest D. Key. Southern
power & industry. v.59, no.5. May 1941. p.84-86.
There is no quicker, or surer way of losing money than by gambling on purchase of belting---even though losses may be obscured.

Boilers.

Boiler testing codes. By J. F. McIntire. Heating, piping & air
conditioning. v.13, no.4. April 1941. p.266-269.

Brooders.

Trends in brooding. By C. L. Henry. Everybodys poultry magazine.
v.46, no.2. February 1941. p.8-9, 39-40. Adoption of
cool room principle in brooding chicks has brought about changes in demand
for different types of brooder stoves.

Brooders, Electric.

Electric brooder campaign proves successful. By E. A. Sherman.
Rural electrification exchange. v.3, no.4. Fourth quarter,
1940. p.90-91. Table gives recommended wire sizes for connecting electric brooders of various demands and at selected distances.

Electric brooders. By L. E. Weaver. American agriculturist.
v.138, no.6. March 15, 1941. p.20, 22.

Simple electric brooder. By Armin J. Hill. Montana farmer.
v.28, no.12. February 15, 1941. p.19.

Building Construction.

Analysis of building frames with semi-rigid connections: Discussion.
By Maurice P. Van Buren. American society of civil engineers.
Proceedings. v.67, no.5. May 1941. p.949.

Column analogy---some special applications. By R. A. Caughey.
Civil engineering. v.11, no.5. May 1941. p.294-297.
Paper brings out few of simpler extensions of method to conditions encountered in structural design with considerable frequency.

Construction costs: 1941 edition. Engineering news-record.
v.126, no.17. April 24, 1941. p.99-102,104,106,108,110,111,
114,116,119,120,122,124,126,128,130,132,134,136,138,140,142,144,148,150,152,
156,158,163,164,166,168,170,172,176,178,181-184,186,188,190,192,194,199,200,
202,204,206,208,210,212-214,216,218,220,222,224,226,230,232,234,236,240,242.

Building Construction. (Cont'd.)

- How to estimate masonry construction. Brick & clay record. v.98,
no.5. May 1941. p.44-45. II. Figuring costs of
various bonds.
- Some earthquake damage results. By C. C. Huskison. Agricultural
engineering. v.22, no.4. April 1941. p.149-150.
- Tests on wood joints with metal connectors. By E. George Stern.
Civil engineering. v.11, no.5. May 1941. p.298-301.

Building Materials.

- Concrete in sea water: A revised viewpoint needed: Discussion.
By Messrs. Lester C. Hammond, Ladis H. Csanyi and G. M. Williams.
American society of civil engineers. Proceedings. v.67, no.5.
May 1941. p.918-922.
- Cotton in house construction. Engineering news-record. v.126,
no.23. June 5, 1941. p.80.

Chemistry, Technical.

- Agricultural engineer looks at farm chemurgy. By Leonard J. Fletcher.
Agricultural engineering. v.22, no.5. May 1941.
p.189-190.
- "Chemurgy". By Fred A. Wirt. Better farm equipment and methods.
v.13, no.7-8. March-April, 1941. p.4-5, 16.
New uses for farm crops materially increasing farm incomes and giving
better balance to agriculture.
- Farm chemurgy. By F. A. Wirt. Implement & tractor.
v.56, no.7. March 29, 1941. p.16-18, 34-36. Chemurgy,
emphasizes three points: 1. Development of new uses for crops we now grow.
2. Establishment of new crops for new uses or old. 3. Profitable utilization
of farm by-products and waste.
- Milk in your hat. By Robert W. Howard. Farm journal & farmer's
wife. v.65, no.1. January 1941. p.15-16.
Casein into felt, soybeans into cloth, farm plastics into motor bodies,
tailor-made oils---1941 will see big advances in industrial uses.

Cold Storage.

- Effect of cold storage conditions on the keeping of dried fruit.
By W. R. Barger. Ice and refrigeration. v.100, no.3.
March 1941. p.235-237.
- Recent advances in the cool storage transport of fruit. By H. E. V.
Parham. Journal of the Mysore agricultural & experimental union.
v.18, no.2. October-December, 1939. p.109-112.

Cotton Gins and Ginning.

Better ginning by repairing cotton gins. By Charles A. Bennett.
Cotton and cotton oil press. v.41, no.9. April 26, 1941.
p.5, 20.

Cotton ginning and defense. By G. A. Gerdes. Cotton and cotton
oil press. v.41, no.7. March 29, 1941. p.5-6.

Crops (Drying).

Dual temperature grass drier. Implement & machinery review.
v.66, no.788. December 1, 1940. p.696-697.

New aspects on the drying and disinfection of cereals. By E. Gasser
and G. Stampa. Monthly bulletin of agricultural science and practice.
v.32, no.1. January 1941. p.24-36.

Studies of barn-dried hay. By William E. Hudson. Agricultural
engineering. v.22, no.5. May 1941. p.170, 172.

Dams.

Cantilever forms for Shasta dam. Engineering news-record.
v.126, no.23. June 5, 1941. p.81-83. Cantilever forms
are used for 5-ft. concrete lifts on Shasta dam, second largest concrete
structure ever undertaken. Vertical studs carry concrete thrust without
use of wales. Panels are 50 ft. long and designed for raising with three
roller-chain jacks on A-frames. Form is entirely free of projections which
might catch 8-yd. cableway bucket.

Cavitation in outlet conduits of high dams: Discussion. By Hunter Rouse.
American society of civil engineers. Proceedings. v.67, no.5.
May 1941. p.870-872.

Compaction of cohesionless foundation soils by explosives. By A. K. B.
Lyman. American society of civil engineers. Proceedings.
v.67, no.5. May 1941. p.769-780. Method of compacting
loose, cohesionless foundation soils in their natural state by detonating
buried charges of explosives has been used successfully at Franklin Falls
Dam, Denison Dam and Almond Dam. Use of this method, is intended to draw
attention to new economical and efficient method of obtaining satisfactory
degree of compaction in cohesionless foundation materials. To employ this
method successfully, materials must be in condition approaching complete
saturation, and under such conditions, this method is widely applicable to
all loose, cohesionless structural foundations. Results obtained in inves-
tigations to date (1941) indicate that in addition to increasing degree of
compaction of materials, horizontal permeability of stratified deposits is
greatly reduced. Further investigations and tests are needed to determine
limits of compaction for specific materials and whether optimum results can
be obtained in fully or partly saturated material.

Drainage.

When orchards need drainage. California cultivator. v.88, no.6.
March 22, 1941. p.174-175.

Dryers and Drying.

Electric clothes dryer. Electricity on the farm. v.14, no.4.
April 1941. p.10. Designed by Farm Electrification Laboratory,
of Puget Sound Power and Light company.

Electric Service, Rural.

Farmer helps build the hi-line load. By D. M. Hobart. Edison
electric institute bulletin. v.9, no.4. April 1941.
p.135-137.

Electricity-Distribution.

Electric power as a regional problem. By Melvin G. de Chazeau.
Southern economic journal. v.7, no.4. April 1941.
p.494-504.

Farm market. Electrical merchandising. v.65, no.5. May 1941.
p.17. Table gives total wired farms in states.

Electricity on the Farm.

Electricity in agriculture and horticulture. Engineering. v.150,
no.3909. December 13, 1940. p.466-467.

Electricity used in poultry house. Wisconsin agriculturist & farmer.
v.68, no.6. March 22, 1941. p.30-31.

Farming in wartime: how electricity can help by saving time and labour.
By H. D. Phelps. Electrical review. v.128, no.3293.
January 3, 1941. p.199-200, 201. Practical advice on selec-
tion and installation of electrical equipment for variety of operations on
farm is given.

Jobs electricity makes easier on the farm. By I. P. Blauser.
Electrical merchandising. v.65, no.5. May 1941. p.27-28.

'Lightning' does the chores around the farm. Prairie farmer.
v.113, no.1. January 11, 1941. p.52-53.

Selling "work" appliances to the farmer. By Tom F. Blackburn.
Electrical merchandising. v.65, no.5. May 1941. p.18-
19. Table shows what it takes to do the odd jobs about farm
electrically.

Electricity on the Farm. (Cont'd.)

Typical eastern farm employs 13,650 Kw.-Hr. per year. By Carl E. Jeer-
ings. Electrical world. v.114, no.22. November 30,
1940. p.66-67, 123-124. Joint rural usage experiment by
Westinghouse and Rochester Gas & Electric results in two-year performance
records reported on 22 meters---Two-cent rate is goal.

West Virginia rural electrification laboratory. By William M. Corwin.
Rural electrification exchange. v.3, no.4. Fourth quarter,
1940. p.84-85, 95.

What farm electrification needs. By B. D. Moses. Agricultural
engineering. v.22, no.5. May 1941. p.179-180, 184.

Engineering.

Progress in engineering knowledge during 1940. By P. L. Alger.
General electric review. v.44, no.2. February 1941.
p.85-120.

Erosion Control.

Climate of the Southwest in relation to accelerated erosion. By C. W.
Thorntwaite, C. F. S. Sharpe, and Earl F. Dosch. Soil conservation.
v.6, no.11. May 1941. p.298-302, 304.

Interpretation of soil conservation data for field use. By Dwight D.
Smith. Agricultural engineering. v.22, no.5. May 1941.
p.173-175.

Farm Buildings.

Built for modern farming. Country gentleman. v.111, no.3.
March 1941. p.27.

New, low-cost hog house. By S. A. Witze. Successful farming.
v.39, no.6. June 1941. p.18, 69.

New type hog house has sunshine features. Farmers digest.
v.5, no.1. May 1941. p.83.

Portable calf barn. By Baird Snodgrass. Pacific rural press.
v.141, no.4. February 22, 1941. p.126.

Rural construction as regards the practical organization of the working of a
farm. By H.J. Hopfen. Monthly bulletin of agricultural science
and practice. v.32, no.2. February 1941. p.57-62.

Arrangement of farm buildings with view to reducing inter-communication to
minimum considerably facilitates economic organization and working of farm.
Elevators allow arrangement of buildings making for easier working. Farm
working is facilitated by combining power and heat production. In construc-
tion of farm buildings, account should be taken not only of position as re-
gards economic working and organization, as, in new trend now being followed,
various other factors have to be considered.

Farm Buildings. (Cont'd.)

Safety bull pen. By L. A. Johnson and K. S. Morrow. Durham, N.H.,
1940. 8 p. New Hampshire. University. Extension service.
Circular no.228.

Farmhouses.

New approaches to farmhouse design, construction and equipment.
By Joseph W. Simons. Agricultural engineering. v.22, no.5.
May 1941. p.181-184. Floor influence on comfort. Wall
construction in relation to climatic conditions. Kitchen comfort problems.
Heating equipment to meet cost and farm fuel requirements.

Farm Machinery and Equipment.

California farm machinery conference. By F. Hal Higgens. Farm
implement news. v.62, no.2. January 23, 1941. p.40-41.

Complete beet harvester is in sight! Implement & machinery review.
v.66, no.787. November 1, 1940. p.610-612.

Conditions where direct combining should be supplemented by swathing.
Farm implement news. v.62, no.3. April 17, 1941.
p.25-26.

Economics of farm machinery. By Dr. John Lee Coulter. Farm
machinery & equipment. No.1830. August 1940. p.5-6,
24-26. How farm equipment industry has eliminated farm drudgery---
raised standard of farm life---reduced costs despite constant improvement---
fallacious criticisms answered.

Farm equipment census. Better farm equipment & methods. v.13,
no.9-10. May-June 1941. p.4-5. Manufacture and sale
of farm equipment and related products compared with years 1938 and 1939.

Farm machinery and national defense. Southern planter. v.102,
no.3. March 1941. p.4, 22-23.

Farm power: from muscle to motor. By John Strohm. Prairie
farmer. v.113, no.1. January 11, 1941. p.30-32, 34, 36.

Harvesting: from cradle to combine. Prairie farmer. v.113, no.1.
January 11, 1941. p.40-42. In 1841, it took sixty-five hours
to produce one acre of wheat; in 1941 it takes only two and one-half hours
to do job.

Harvesting grain sorghums. By F. C. Fenton. Agricultural
engineering. v.22, no.4. April 1941. p.137-138, 142.
Variety of mechanical harvesting methods. Special handling problems.

Hitching a horse mower to a tractor. New Zealand journal of agriculture.
v.62, no.1. January 15, 1941. p.38-39.

Farm Machinery and Equipment. (Cont'd.)

Isometric drawing of---filbert huller. Rural electrification exchange.
v.3, no.4. Fourth quarter, 1940. p.83.

Machines designed for harvesting and storing grass silage. By H. E.
Besley and W. R. Humphries. Agricultural engineering. v.22,
no.4. April 1941. p.125-126. Cutting. Gathering.
Hauling. Chopping. Field Choppers. Elevators.

Manufacture and sale of tractors, combines and threshers. Better
farm equipment and methods. v.13, no.7-8. March-April, 1941.
p.6-7. 1940 production of tractors 30 per cent more than 1939---
continued trend toward small farm units and rubber tires.

Mechanical blocking saves time by 30%. Through the leaves.
v.29, no.3. May 1941. p.24-25. Prevents losses from
plants getting too big.

Modern farm practice and mechanical power. By A. P. Brodell and Robert C.
Tetro. Agricultural situation. v.25, no.5. May 1941.
p.19-22. Table 1.--Number of tractors, automobiles, motor trucks,
horses and mules 2 years old and over, on farms, and number of farms January
1, specified years. Table 2.--Importance of mechanical power in the pro-
duction of small grains. Table 3.--Importance of tractor power in pre-
paring land, planting, cultivating and cutting corn, by Geographic Divisions
1939.

Modern machinery for tame hay harvesting. Implement & tractor.
v.56, no.11. May 24, 1941. p.14-15, 38.

More efficient use of vegetable farm machinery. By Alvin C. Thompson.
Market growers journal. v.68, no.10. May 15, 1941.
p.263-264. 1. Harvesting carrots. 2. Celery harvester. 3. Aspa-
ragus stubber and ridger.

New solution of the unit principle. Implement & machinery review.
v.66, no.789. January 1, 1941. p.792-795. Unit prin-
ciple is not a novelty in sense of being something that is offered to farm-
ing public for first time. Within last 30 years or so, as many applications
of principle have been announced. But present departure is based upon long
consideration of subject and especially of defects of previous attempts.
It will be understood that one of aims of this principle generally is to
obtain line of draught nearer to horizontal than is possible with hauled
implement, thus minimising tendency for either implement to draw wheels into
ground or for tractor to pull implement out of it.

Our industry and preparedness. By H. L. Dempster. Farm imple-
ment news. v.62, no.6. March 20, 1941. p.40-41.

Pick-up baler that slices the hay. Farm implement news. v.62,
no.2. January 23, 1941. p.38-39.

Farm Machinery and Equipment (Cont'd.)

Portable hop picking machine cuts picking costs. Implement & tractor.
v.56, no.12. June 7, 1941. p.13-14, 45.

Results of row spacing experiments with corn. By Edgar V. Collins and
C. K. Shedd. Agricultural engineering. v.22, no.5.
May 1941. p.177-178.

Some engineering implications of high-speed farming. Agricultural
engineering. v.22, no.5. May 1941. p.165-169.
Contribution by C. J. Scranton, Elmer McCormick, B. G. Burr and D. C.
Hoitshu.

Sugar beet sample washer. By J. G. Lill. Journal of American
society of agronomy. v.32, no.12. December 1940.
p.973-974.

Taxes will cut harvester's earning power this year. By Stanley Devlin.
Magazine of Wall street. v.67, no.12. March 22, 1941.
p.706-707, 730-731.

There's a knack in good combining. By Carlton Stoddard.
Successful farming. v.39, no.7. July 1941. p.20-21.
Skill of operator must be added to machine's efficiency if all the crop is
saved in perfect condition.

Variable depth seed planter. By J. E. Coke. Sugar beet
bulletin. v.5, no.1. January 1940. p.52-53.
Gives diagram of variable-depth planter.

Feed Grinders and Grinding.

New technique of farm grinding. Implement & machine review.
v.66, no.790. February 1, 1941. p.888-890.

What size feed grinder? By I. P. Blauser. Electricity on the
farm. v.14, no.2. February 1941. p.5-6. How to
figure the cost of grinding with different size mills. Select right, in-
stall correctly and you can grind profitably.

Fences.

Contour fencing. By F. E. Charles. Successful farming.
v.39, no.6. June 1941. p.11.

Fundamentals of protective fencing. By R. D. Logee. Engineering
news-record. v.126, no.17. April 24, 1941. p.610-
612. Practical answers to number of questions concerning height,
location, spacing of posts, attachment of barbed wire and use of gates for
such installation.

Fences, Electric.

Electric fence.
v.141, no.3.

By B. D. Moses.
February 8, 1941.

Pacific rural press.
p.97.

Fibers, Synthetic.

New industrial giants.
Street.
787-788.

By J. C. Clifford.
v.67, no.13. April 5, 1941.
Part III. Synthetic fibres.

Magazine of Wall
p.756-758,

Fire Protection.

Use of CO₂ in the control of hay mow fires.
Agricultural engineering. v.22, no.5.

By L. G. Keeney.
May 1941. p.176.

Fireplaces.

Cooking in the backyard.
May 1941. p.1-5.

Consumers' digest. v.9, no.5.

Figuring for fireplaces.
January 1941. p.22-23.

House & garden. v.79, no.1.

Let's eat out---
v.39, no.7.

By Hi Sibley.
July 1941. p.15.

Successful farming.

Flax.

Crop that came back.
v.111, no.4.
flax.

By Don Wharton.
April 1941.

Country gentleman.
p.7-8, 70. Discussion of

Floods and Flood Control.

Evaluation of flood losses and benefits. By Edgar E. Foster.
American society of civil engineers. Proceedings. v.67, no.5.
May 1941. p.805-828. Analysis of damages, including annual
flood loss, constitutes outstanding problem of economics of flood control
in which benefits must be weighed against costs. It is purpose of paper
to present some methods that have been used by the writer. Primary condi-
tion imposed is that method must be based on sound principles of mathematics,
hydrology, and economics. In order to demonstrate that this condition was
met, paper contains brief description of various types of damage, some
fundamental concepts of economics, discussion of frequency and damage
curves, and example of computation of annual loss.

Maximum probable floods on Pennsylvania streams: Discussion. By Waldo E.
Smith. American society of civil engineers. Proceedings.
v.67, no.5. May 1941. p.873-878.

Foods, Frozen.

Freezing fruits and vegetables by immersion. By J. G. Woodroof and J. O.
Tankersley. Ice & refrigeration. v.100, no.4. April
1941. p.309-310. Brief history of immersion freezing.
Similarity between freezing and cooking by immersion. Present status of
immersion freezing.

Quality of meat as affected by freezing temperatures. By O. G. Hankins
and R. L. Hiner. Refrigerating engineering. v.41, no.3.
March 1941. p.185-189. Little research has been done on
frozen meat in which appearance factor was measured objectively. In color
of freshly cut lean of pork stored 10 months at 0° and +18° F. percentage
of black had increased and white decreased. Haemoglobin, in air, is oxi-
dized to methaemoglobin, latter brown in color. Change to yellowish color
accompanies oxidation of fat, especially that of pork. Desiccation causes
change in color and gives pithy appearance to lean. Methods for destruction
of trichinae in pork through freezing have been developed. At +14° F. and
below meat can be stored without growth of microorganisms. Flavor is
difficult to evaluate. Probably rancidity is one flavor characteristic
that can be approached most directly. Basic causes of rancidity are (a)
oxidation, (b) enzymes, and (c) microorganisms. Beef and lamb fats are
comparatively resistant to oxidative changes. Undesirable degree of ranci-
dity was found in pork after two months' storage at +15° F. although there
was little, if any, indication of rancidity after 12 months at 0° F. There
was little difference in free-fat-acid content between freezer-stored
samples previously chilled at +33° and +50° F. Indications are that
difference in flavor of lean occurs, in general, between freshly slaughtered
and freezer-stored meat. Preponderance of evidence is that freezing makes
beef more tender. Temperatures of -40° and -10° F. had more tenderizing
effect than +20°. During subsequent period beef stored at +20° increased
in tenderness and after 168 days equalled that stored at -40° and -10°.
Freezing at -10° F. five days after slaughter produced more tender beef
than aging at +33° for 35 days. Beef aged 35 days at -33° was further
tenderized by freezing at -10°. Indications are that freezing has no
appreciable effect on nutritive value of meat.

Fuels.

Combustion in wartime. By A. C. Dunningham. Electrical review.
v.128, no.3303. March 14, 1941. p.460-461. Discussion
of low-grade fuels.

Combustion of waste-wood products. By H. W. Beecher and R. D. Watt.
Engineering. v.150, no.3909. December 13, 1940.
p.474-475.

Cost of steam with gas as fuel. By Irving E. Brooke. Heating,
piping & air conditioning. v.12, no.11. November 1940.
p.669-670. Gives complete data for easily computing the cost of fuel.

Gas works go rural. By Arthur W. Baum. Country gentleman.
v.111, no.2. February 1941. p.18, 53. New utility, liquefied
petroleum gas, is bringing modern conveniences to thousands of farm homes
from coast to coast.

Fuels. (Cont'd.)

Today's world turns on oil.
geographic magazine.

By Frederick Simpich.
v.79, no.6. June 1941.

National
p.703-748.

Grain Storage.

Grain bins.
1941.

Implement & tractor.
p.17, 37.

v.56, no.11.

May 24,

Storage of grain sorghums.
engineering.

By F. C. Fenton.
v.22, no.5. May 1941.

Agricultural
p.185-188.

Theory of drying grain. Methods of ventilation of sorghums in storage.
Effect of heat in ventilation. Mechanical ventilation.

Types of cribs for storing maize on the farm.

By C. Walker.

New Zealand journal of agriculture.
1941. p.29-31.

v.62, no.1.

January 15,

Designs of maize cribs are submitted as guide to intending maize growers, who should be able to make selection that will meet with their requirements.

Heating.

A. R. shelter heating.

Electrical times.

v.99, no.2578.

March 20, 1941.

p.181-182.

Article gives detail account of experiments in electric shelter heating carried out by Northmet Electric Power Co., Ltd. It is particularly interesting as problem of cold feet is objectively tackled, by use of soil heating cable, with very satisfactory results.

Heat balance tests of a stoker-fired domestic heating plant.

By R. S.

Julsrud.

Heating, piping & air conditioning.

v.13, no.5.

May 1941.

p.329-333.

Tests are reported for domestic heating and air conditioning plant, fired by bituminous bin feed ash removal stoker. To obtain good results with coals of different burning characteristics, tests show satisfactory fuel bed conditions can be obtained, provided attention is given to careful study of burning characteristics of each coal under consideration. From standpoint of dependability coking action of coal in retort is of major importance. No smoke nuisance was observed with any of coals tested. High ash content is not objectionable, aside from increased labor of removal. Observations indicated that clean delivery and absence of dust in coal bin is desirable, and to fulfill this coal should be dust proofed.

Heat gain through western windows with and without shading.

By F. C.

Houghten and David Shore.

Heating, piping & air conditioning.

v.13, no.4.

April 1941.

p.256-265.

New heating units for the small home.

House & garden.

v.79, no.1.

January 1941.

p.44-45.

Radiant heating with cast iron panels.

By F. W. Hutchinson.

Heating, piping & air conditioning.

v.13, no.4.

April 1941.

p.231-234.

Describes and discusses a method used in Europe.

Heating. (Cont'd.)

- Wall heat loss back of radiators. By Earl C. Willey. Heating &
ventilating. v.37, no.11. November 1940. p.32-33.
- Water-air chart. By William Goodman. Heating, piping & air
conditioning. v.13, no.4. April 1941. p.221-225.
Its use for solving problems involving the exchange of heat between air and
water.
- Warm-air furnace codes. By F. L. Meyer. Heating, piping & air
conditioning. v.13, no.4. April 1941. p.270-272.
Resumé is given of progress made in past 30 years in development of warm
air furnace codes. As result of research in 1922 code for gravity systems
was devised, and through application of fans to warm air furnaces code was
developed in 1932 covering design and installation of mechanical warm air
heating systems. Desirability of developing test method for rating of
forced warm air furnace systems is emphasized with need for additional
laboratory studies to develop necessary testing procedure and technique.

Houses.

- Harvesting homes. By S. P. Lyle. Agricultural leaders digest.
v.22, no.4. May 1941. p.9-11.
- Houses built in jig-time. Engineering news-record. v.126, no.21.
May 22, 1941. p.813-817.
- New demountable cottages developed by Tennessee valley authority.
Pencil points. v.22, no.6. June 1941. p.397-400.

Insulation.

- Effect of insulation on plant performance in the research residence.
By A. P. Kratz and S. Konzo. Heating, piping & air conditioning.
p.13, no.5. May 1941. p.318-324. Operating results
are reported between an uninsulated and insulated structure utilizing same
heating plant. Data are given for fuel consumption savings due to installa-
tion of storm sash, and in addition, reduction in electrical inputs for
stoker and fan motors of heating plant are tabulated. Temperature data are
also given showing differential between breathing level and floor, together
with inside surface temperatures of exposed walls due to application of
insulation to structure.
- Fibrous glass as an insulator. By Herbert W. Conn. Colorado
engineer. v.37, no.4. May 1941. p.100-103.
Discusses features and advantages of spun glass insulation as compared with
other insulating materials.
- Insulating materials. By J. F. Gillies. Electrical review.
v.128, no.3299. February 14, 1941. p.367-368. Recent
developments in synthetic products.

Insulation. (Cont'd.)

- Measuring moisture protection. By John F. Stone. Refrigerating
engineering. v.41, no.5. May 1941. p.326-327, 335.
Method for determining whether insulation specifications are adequate.
- New technique developed for insulating cold fluid piping. By E. T. Cope
and W. F. Kinney. Heating, piping and air conditioning.
v.12, no.12. December 1940. p.703-706. Describe
use of latex rubber as vapor barrier.
- Some properties of insulating materials. By Ezer Griffiths.
Modern refrigeration. v.44, no.515. February 1941.
p.26, 27, 28, 29. Table 2.--summary of thermal conductivity data.

Irrigation.

- Acres irrigated by various quantities of water. Better farm equipment
& methods. v.13, no.9-10. May-June 1941. p.10.
Table taken from government tests, shows number of acres irrigated in 1 and
10 hours, pumping various quantities, and irrigating various depths.
- Cultivation and irrigation of citrus. By R. J. Benton. Agricul-
tural gazette of New South Wales. v.51, no.10. October 1,
1940. p.573-574.
- Irrigation in western New York. By Morris H. Lloyd and Harry C. Gilbert
Rural electrification exchange. v.3, no.4. Fourth quarter,
1940. p.86-87, 94.
- Streamlining irrigation efficiency. Through the leaves. v.29,
no.3. May 1941. p.12-15.

Irrigation Canals.

- Silt canal lining saves irrigation water. By C. C. Ketchum.
Reclamation era. v.31, no.4. April 1941. p.114-115
126-127.

Land Clearing.

- Log clearing for £5 per acre. By W. T. Brown. New Zealand
journal of agriculture. v.62, no.1. January 15, 1941.
p.6-8.

Lighting.

- Blackouts. By Charles W. Stewart, Jr. Military engineer.
v.33, no.189. May-June, 1941. p.177-181.
Methods of lighting control.
- Facts about fluorescent lighting. By Myrtle Fahsbender.
Electricity on the farm. v.14, no.4. April 1941. p.8-9,
12. Description of lamps, their use, cost, advantages and disadvan-
tages.

Lighting. (Cont'd.)

Fluorescent lamp applications in the home. By Myrtle Fahsbender and Richard G. Slauer. Illuminating engineering. v.35, no.8. September 1940. p.669-691. Present practical data as result of study of fluorescent lamp installations in private families of varying incomes.

Interior surfaces affect lighting. By James J. Oberhausen and Harry H. Scheid. Pencil points. v.22, no.6. June 1941. p.411-417.

Lighting fixture design materials. By C. T. Masterson and R. F. Cissell. Pencil points. v.22, no.3. March 1941. p.203-210. 1. Materials for reflectors. 2. Translucent materials for concealment. 3. Lamps.

Progress in rating residence luminaires. By William F. Little. Illuminating engineering. v.35, no.10. December 1940. p.981-1000. Report on behalf of committee on residence lighting.

Signs of progress. By C. E. Weitz. Illuminating engineering. v.36, no.2. February 1941. p.169-201. Report of the I. E. S. committee on progress.

Lubrication.

Food handling machinery. Lubrication. v.27, no.4. April 1941. p.37-48.

Milk Cooling.

Cooling milk on the farm. Milk plant monthly. v.30, no.4. April 1941. p.25-29. Article IV: milk houses: 1. Selecting the site. 2. Sizes of milk houses. 3. Drainage. 4. Floors, walls, ventilation. 5. Winter care and handling. 6. Stopping milk losses. 7. Cooling of cream. 8. Racks for cans and utensils.

Moisture Control.

Basements and savings. By Llewellyn Price. Pencil points. v.22, no.4. April 1941. p.275-277.

Current problems in wall condensation. By L. V. Teesdale. Heating & ventilating. v.37, no.11. November 1940. p.46-47. Studies of condensation in walls are reported in this article, abstracted from paper presented at Centennial Meeting of National Mineral Wool Association last spring.

Moisture, its sources, effects and control. By R. L. Hockley. Refrigerating engineering. v.41, no.3. March 1941. p.179-181. Author lists freeze ups, formation of sludge, hydrolizing of refrigerants to form acids and copper plating as difficulties resulting from moisture in refrigeration system. He describes various ways of installing dehydrators, and two general types of dehydrating agents.

Moisture Control. (Cont'd.)

Vapor barriers check moisture. Wisconsin agriculturist and farmer.
v.68, no.5. March 8, 1941. p.16-17.. Forest Products
Laboratory at Madison say that most positive and least expensive way is to
use vapor resistant barriers at or near inner surface of wall, to stop
condensation inside of wall, itself. Vapor barriers are not useful to stop
condensation upon inside surface of wall. Some satisfactory results have
come from using following materials highly resistant to water vapor action:
(1) light weight asphalt roll roofing; (2) asphalt impregnated and surface
coated sheathing paper; glossy and about 35 to 50 pounds to roll; (3) lam-
inated paper made of two or more sheets of kraft paper cemented together
with asphalt; and (4) doublefaced reflective insulation mounted on paper.
None of materials listed are 100 per cent resistant to vapor transmission,
but they serve to reduce amount of vapor entering wall to point where any,
that does enter can escape outward through outer sheathing without causing
damage.

Motor Fuels.

Fuel clinic for your tractor. By Carlton Stoddard. Successful
farming. v.39, no.5. May 1941. p.11, 52-53.

Paints and Painting.

Right paint for your job. By Dr. F. L. Browne. Successful farming
v.39, no.5. May 1941. p.12-13, 30.

Pest Control.

Insecticide dispersing machine. By C. W. Veach and W. E. McCauley.
Agricultural engineering. v.22, no.5. May 1941.
p.171-172.

Plows and Plowing.

Utility of soil-inverting ploughs and improved implements as compared with
indigenous implements. Journal of Mysore agricultural & experi-
mental union. v.18, no.1. 1939. p.34-42.

Poultry Houses and Equipment.

High efficiency laying houses. By C. E. Lee. Farmers digest.
v.5, no.1. May 1941. p.50-56.

Laying cages. By J. C. Scott. Rural electrification exchange.
v.3, no.4. Fourth quarter, 1940. p.82-83.

Mechanical poultry picker. By Douglas Hayes. Rural electrifi-
cation exchange. v.3, no.4. Fourth quarter, 1940.
p.93.

Poultry Houses and Equipment. (Cont'd.)

Poultry adopts the old horse barn. By F. J. Keilholz.
Successful farming. v.39, no.5. May 1941. p.14.

Power.

Power and combustion. By Professor A. C. G. Egerton. Engineering.
v.150, no.3909. December 13, 1940. p.478-480.

Public Works.

Value of public works: Discussion. By Messrs. Uel Stephens, William J.
Wilgus, Bernard L. Weiner, Albert Ed. Scheible, H. B. Cooley, and Philip W.
Henry. American society of civil engineers. Proceedings.
v.67, no.5. May 1941. p.931-944.

Pumps and Pumping.

Characteristic design factors for pumps. By J. R. Finniocome.
Engineering. v.150, no.3909. December 13, 1940. p.464-465.

Electric pumps economical. Montana farmer. v.28, no.17.
May 1, 1941. p.13. Models practical for lifts of less than
20 or 30 feet.

Running water. By F. J. Hurst. Southern agriculturist.
v.71, no.1. January 1941. p.9. First of a series of
articles on running water in home. Discusses wind power for pumping water.

Running water. By J. C. Hundley. Southern agriculturist.
v.71, no.2. February 1941. p.22. Part 2. Power
pumps.

Quick Freeze.

Quick freezing of poultry. Part II. By William J. Finnegan.
Refrigerating engineering. v.41, no.3. March 1941.
p.175-178.

Quick frozen foods and refrigeration. By Harry Carlton.
Refrigerating engineering. v.41, no.5. May 1941.
p.328-329, 358, 360.

Rainfall and Runoff.

Reliability of station-year rainfall frequency determinations: Discussion.
By Messrs. Waldo E. Smith and Robert L. Lowry, Jr. American society
of civil engineers. Proceedings. v.67, no.5. May 1941.
p.887-890.

Reclamation.

- Columbia turns on the power.
geographic magazine. By Maynard Owen Williams. National
v.79, no.6. June 1941. p.749-792.
- Nebraska takes a chance. By Walt Samuelson. Western farm life.
v.43, no.9. May 1, 1941. p.3, 6, 21.
- So thirsty Utah land can drink. By Lamont Johnson. Western
farm life. v.43, no.8. April 15, 1941. p.3, 13.

Refrigeration.

- Advances in refrigeration biology. By B. E. Proctor. Refrigeration
ting engineering. v.41, no.4. April 1941. p.244-246.
- Gravity froster. By Clarence Birdseye. Refrigerating engineering.
v.40, no.5. November 1940. p.281-285. Describes most
recent development.
- How to determine size and cost of freon lines. By William Parkerson.
Heating & ventilating. v.37, no.11. November 1940.
p.48-52. Six charts designed to make possible quick and easy selec-
tion of proper size freon refrigerant velocities and cost of lines.
- Refrigeration has many uses in the laboratory. By John T. Bowen and W. V.
Hukill. Refrigerating engineering. v.40, no.5. November
1940. p.287-291, 305. Descriptions of research, prepared
largely by investigators, review some uses of refrigeration.
- Refrigeration in wine making. Refrigerating engineering. v.41,
no.3. March 1941. Refrigerating engineering application
data--section 23, p.1-4.

Refrigerator Lockers.

- Freezer locker system expands. By S. T. Warrington. Agricultural
situation. v.25, no.4. April 1941. p.12-14.
- Locker storage and related freezing facilities for community storage plants.
By W. R. Woolrich. Ice & refrigeration. v.100, no.3.
March 1941. p.199-202.
- Lockers as related to the frozen foods industry. By J. Raymond Adams.
Refrigerating engineering. v.41, no.1. January 1941.
p.24, 30.
- Selection and preparation of fruit for locker storage. By F. M. Coe.
Utah farmer. v.60, no.21. June 25, 1941. p.3, 12-13.

Refrigerators.

- Farm freezer cooler plant. By Armin J. Hill. Montana farmer.
v.28, no.15. April 1, 1941. p.15.

Refrigerators. (Cont'd.)

High relative humidity in walk-in refrigerators. By A. R. Dennington.
Refrigerating engineering. v.41, no.1. January 1941.
p.11-13, 30. Author explains that proper preservation of meat
depends on several factors---temperature, relative humidity and air circula-
tion. Tests showed that overhead cooling coils are on whole unsatisfactory,
but desired results were obtained with arrangement of fans and baffles.

Individual farm freezing units in Indiana. By Richard L. Witz.
Indiana farmers guide. v.97, no.5. March 8, 1941.
p.4, 12.

New flavors for feasts. By Dr. Frank Thone. Science news letter.
v.38, no.20. November 16, 1940. p.314-315. New unit
for household makes it possible to have frozen fresh vegetables, meats,
fruits for holidays.

Refrigerants.

Cycle efficiencies of refrigerants. By A. A. Berestneff.
Refrigerating engineering. v.41, no.4. April 1941.
p.259-262. Study is intended to make available more exact information
than we have had on ammonia, Freon-12 and Freon-11, first two being used in
reciprocating machines and third, also known as Carrene No. 2, in centri-
fugal compressors.

Refrigerant tables and charts with various practical examples.
Refrigerating engineering. v.41, no.4. April 1941.
Refrigerating engineering application data 24, p.1-6.

Research.

Industrial research---a key activity both in peace and war. Domestic
commerce. v.27, no.25. June 19, 1941. p.677-682.

Plea for research. By Donald K. Tressler. Refrigerating
engineering. v.41, no.4. April 1941. p.251, 262.
Need for knowledge of new processes--use of lower temperatures, higher
humidities, controlled atmospheres.

Scientists for defense. By Marjorie van de Water. Science news
letter. v.39, no.13. March 29, 1941. p.197-198.
Half million of them will ultimately be listed in national roster.

Reservoirs.

Multiple-purpose reservoir operation. By Nicholls W. Bowden.
Civil engineering. v.11, no.5. May 1941. p.292-293.
Part I. In single or independent units.

Multiple-purpose reservoir operation. By Nicholls W. Bowden.
Civil engineering. v.11, no.6. June 1941. p.337-340.
Part II. In combination systems with several units.

Roofs.

Consider your over-head. By Henry Giese. Successful farming.
v.39, no.6. June 1941. p.12-13, 28. Roof construction.

Farm roofs must keep out rain. Wisconsin agriculturist & farmer.
v.68, no.6. March 22, 1941. p.7, 15. "The country
carpenter" describes best protection.

Rubber.

New industrial giants. By J. C. Clifford. Magazine of Wall street.
v.67, no.12. March 22, 1941. p.699-701, 734.
Part II. Synthetic rubber.

Safety.

Safety on the farm. By Dr. William Newell. California cultiva-
tor. v.88, no.7. April 5, 1941. p.205, 221.

Silos.

How will you keep your wheat down on the farm? By F. C. Fenton.
Successful farming. v.39, no.7. July 1941. p.12-13, 26.

More and better silos. By L. R. Neel. Southern agriculturist.
v.71, no.2. February 1941. p.4, 25.

We build a trench silo. By Willard Bolte. Indiana farmers guide.
v.97, no.6. March 22, 1941. p.140, 148.

Soils.

Laboratory investigations of soils at Flushing Meadow park: Discussion.
By Gordon E. Thomas and M. N. Sinacori. American society of civil
engineers. Proceedings. v.67, no.5. May 1941. p.915-917.

Silt.

Transportation of sediment by flowing water and its importance in soil conser-
vation. By J. W. Johnson. Soil conservation. v.6,
no.11. May 1941. p.290-293.

Stoves.

Improved wood stove. By Edgar L. Heermance. Australian forestry.
v.5, no.2. December 1940. p.118-119.

Modern insulation and design for cooking ranges. By John B. Schneller.
Stove builder. v.6, no.5. May 1941. p.30-34, 76.

Surveying.

The surveyor and the law. By A. H. Holt. American society of civil engineers. Proceedings. v.67, no.5. May 1941. p.753-767. Paper discusses, primarily, law of boundaries. That is very broad subject, capably treated in at least three books which, in whole or in part, are directly concerned with subject. Subject is also included, as incidental material to even broader subjects, in many treatises and compilations to which one commonly turns in efforts to learn law. It is desired to present discussion of those aspects of law which tend to indicate and to define duties and responsibilities of surveyors in their share of work of establishing, describing, and recovering boundaries of land. This is work in which there must be combined (with mutual understanding if best results are to be secured) training, experience, and well-counseled efforts of practitioners of law and engineering.

Textile Drying.

Textile drying. By Fred Kershaw. Rayon textile monthly. v.22, no.2. February 1941. p.63-65. Review of recent developments.

Textile Fibers.

Distribution and relation of fiber population, length, breaking load, weight, diameter, and percentage of thin-walled fibers on the cottonseed in five varieties of American upland cotton. By Jerry H. Moore. Journal of agricultural research. v.62, no.5. March 1, 1941. p.255-302. Main object of work presented in paper was to determine distribution and relation of fiber population, length, breaking load, weight, diameter, and percentage of thin-walled fibers on the cottonseed in five varieties of American upland cotton.

Tires.

Rubber tires have changed farm equipment and methods. By Eulon Pritchett. California cultivator. v.88, no.6. March 22, 1941. p.178-179.

Tractors.

Agricultural tractor equipment with depth-control. Engineering. v.151, no.3921. March 7, 1941. p.186-187. Describes new method of depth control for implement being towed by tractor, both tractor and implement being connected so that they form single unit, tractor having certain modifications.

Get dividends from your tractor. By I. W. Dickerson. Montana farmer. v.28, no.17. May 1, 1941. p.13. Full utilization, longer service possible with proper care and handling.

Manufacture and sale of tractors, combines and threshers. Farm machinery & equipment. No. 1886. February 1941. p.10-11.

Tractors. (Cont'd.)

Nazi tractor talk. Business week. No. 602. March 15,
1941. p.96. Reveals plans for production of midget farm
units on scale that would be directly competitive with U. S.

Ventilation.

Adapting ventilating fans to farm buildings and equipment. By H. N.
Stapleton. Rural electrification exchange. v.3, no.4.
Fourth quarter, 1940. p.78-80. Dairy barn ventilation.
Poultry house ventilation. Drying hay in the barn. Cooling apples with
fans. Heated room battery brooding. Drying corn artificially. Curing
tobacco with conditioned air. Fans in the home. Fans of small sizes.

Air dilution in industrial ventilation. By W. C. L. Hemeon.
Heating & ventilating. v.37, no.11. November 1940.
p.39-43. Author classifies industrial ventilating systems into two
kinds: (1) local exhaust systems which remove dangerous vapors, fumes, or
dusts, and (2) general ventilating systems which, by supplying outside air,
so dilute air that contamination of fumes, dusts or gases is reduced to
point below dangerous level. Article is up-to-the-minute on available data
and at same time extremely practical.

Better ventilation with the sliding slot. Everybodys poultry magazine.
v.46, no.2. February 1941. p.34-35. Diagram
shows method of construction of sliding-slot, restricted-front type of
ventilation. This type of ventilation is equally satisfactory for single
or multiple-story houses.

Walls.

Brick cavity walls. Architectural forum. v.73, no.6.
December 1940. p.527-530. Gives diagrams of construction
details.

Water, Underground.

Contamination of ground-water resources. By Burt Harmon.
Civil engineering. v.11, no.6. June 1941. p.345-347.

Water Heaters.

Isometric drawing of cattle trough heating: electric immersion heater thermos
static control. Rural electrification exchange. v.3, no.4.
Fourth quarter, 1940. p.75.

Water Supply, Rural.

Running water saves their health. Wallaces' farmer and Iowa homestead.
v.66, no.2. January 25, 1941. p.14-15.

Weeds.

- Crop response to inter-row tillage. By H. C. Pereira.
Empire journal of experimental agriculture. v.9, no.33.
January 1941. p.29-42. Purpose of paper is to examine available data to decide if mulching, per se, has this supposed beneficial effect on crop, for if it has not, then it will be worth while investigating if mulch-producing methods of hoeing and grubbing are most economical or efficient way of weed-control.
- Fuel-less weed burner--but it burns 'em. Farm implement news.
v.62, no.6. March 20, 1941. p.26.
- Keeping blackberry in check. New Zealand journal of agriculture.
v.62, no.1. January 15, 1941. p.13-15. Spraying
with chlorate weedkillers has proved effective and economical.
- Weeds in orchards. By W. W. Robbins. Reclamation era.
v.31, no.5. May 1941. p.147-150. Weed species.
Competition for water and mineral nutrients. Injurious fungi and insects.
Introduction and spread of weeds in orchards. Control of weeds in orchards.
- Weed-free pastures. By Ivy M. Howard. Successful farming.
v.39, no.6. June 1941. p.16, 68.

Wood.

- Developments in wood technology. By David Brownlie. Engineer-
ing. v.150, no.3909. December 13, 1940. p.461-462.
- Developments in wood technology. By David Brownlie. Engineering.
v.150, no.3911. December 27, 1940. p.502-504.
- We're learning about wood. By Philip S. Rose. Country gentleman.
man. v.111, no.6. June 1941. p.7, 55-57.
New process will supply the farmer with better materials for buildings, containers and other uses.
- Wood preservation through chemistry. By E. H. Rieman. Du Pont
magazine. v.35, no.5. May 1941. p.10-13, 24.

